

November 7, 2003

TO: Members of the MAG Regional Aviation System Plan Policy Committee

FROM: Mayor Elaine M. Scruggs, Chairman, Glendale

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Tuesday, November 18, 2003 -11:00 a.m.
MAG Office, Suite 200, Saguaro Room
302 North 1st Avenue, Phoenix

A meeting of the Maricopa Association of Governments (MAG) Regional Aviation System Plan (RASP) Policy Committee will be held at the time and place noted above. **If you are unable to attend the meeting, please make arrangements for a proxy from your jurisdiction or organization to represent you. Proxies for elected officials need to be an elected official from the same jurisdiction.**

Members of the MAG RASP Policy Committee may attend **either in person or by telephone conference call**. Those attending by telephone conference call are requested to call 602-261-7510 between 10:55 a.m. and 11:00 a.m. After prompting, please enter the meeting ID number 2842 on your telephone key pad followed by the pound key. If you require assistance, please dial 0 after calling the number above.

Please park in the garage under the Compass Bank Building at the corner of 1st Avenue and Van Buren in an unreserved space. Bring your ticket to the meeting and parking will be validated. For those using transit, the Regional Public Transportation Authority will provide transit tickets for your trip. For those using bicycles, please lock your bicycle in the bike rack in the garage.

Please be advised that under procedures approved by the MAG Regional Council on June 26, 1996, all MAG committees need to have a quorum to conduct business. A quorum is a simple majority of the membership, or 8 people for the MAG RASP Policy Committee. If you have any questions or need additional information, please contact Harry Wolfe at (602) 254-6300.

TENTATIVE AGENDA

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|----|---|----|---|
| 1. | <u>Call to Order</u> | | |
| 2. | <u>Review of Minutes of December 10, 2003</u> | 2. | For information, discussion and approval of meeting minutes of December 10, 2003. |

3. Overview and Status Report on the MAG RASP Update

The MAG Regional Aviation System Plan Update was started in 2000. To date we have conducted an inventory of our airports, (Working Paper #1) forecast future airport traffic (Working Paper #2) and based on a comparison of forecast traffic and airport capacity (Working Paper #3) identified four airport alternatives for accommodating the projected traffic. (Working Paper #4). The MAG RASP Policy Committee accepted each of the working papers noted and reviewed and accepted the criteria to be used for evaluating the alternatives. Working Paper (#5), which will be addressed in the next agenda item, subjects those four alternatives to an evaluation to determine the pros and cons of each alternative. Based upon the evaluation of the alternatives, input from the MAG RASP Policy Committee and public input, the consultant will prepare recommendations and an implementation plan.

4. Review of Working Paper #5, Evaluation of Alternatives

On September 26, 2003 Working Paper #5 Evaluation of Alternatives was distributed to members of the MAG RASP Policy Committee via e-mail. A hard copy of the document was also sent to Policy Committee members and comments were requested by October 28, 2003. The document may also be downloaded from the MAG Website at the following address:

<http://www.mag.maricopa.gov/detail.cms?item=2822>. A meeting of technical staff was held on October 17, 2003 to gather comments on the Working Paper #5. A summary of the input provided at the meeting along with comments received are enclosed. Please see Attachment One.

3. For information and discussion

4. For information, discussion and possible recommendation to accept Working Paper #5, Evaluation of MAG RASP alternatives.

5. MAG RASP Public Meeting

A public meeting on the MAG RASP Update will be held on Thursday, December 4, 2003 from 5:00 p.m. to 7:30 p.m. The objective of the meeting is to provide an opportunity for the public and aviation interest groups to provide input on an evaluation of the MAG RASP alternatives. Member agencies are encouraged to circulate the meeting notice to all interested parties. Please see Attachment Two.

6. Efforts to Protect and Preserve the Mission of Luke Air Force Base

A number of efforts are being undertaken to preserve the mission of Luke Air Force Base, including land use studies by the State activities of a military preservation committee, and recent federal appropriation of more than \$14 million in funds to land acquisition in the vicinity of Luke Air Force Base. A status report will be provided.

7. Report on Other Aviation Matters that Have an Impact on the Region

Other aviation matters that have an impact on the region will be discussed including, but not limited to, the installation of planned navigation and air traffic facilities and airspace plans.

8. Call to the Audience

Members of the audience will have an opportunity to address the MAG RASP Policy Committee about agenda items and other issues of interest

5. For information and discussion.

6. For information and discussion.

7. For information and discussion.

8. For information and discussion.

MINUTES OF THE
MAG REGIONAL AVIATION SYSTEM PLAN POLICY COMMITTEE

Maricopa Association of Governments (MAG) Office
302 North 1st Avenue, Ste. 200, Saguaro Room
Phoenix, Arizona

December 10, 2002

MEMBERS IN ATTENDANCE

Mayor Elaine Scruggs, Chair, Glendale
Councilmember Bob Caccamo, Chandler
*Councilmember Dave Crozier, Gilbert
Councilmember Ken Porter
Councilmember Mike Whalen for Mayor Keno
Hawker, Mesa
Councilmember Robert Littlefield, Scottsdale
Councilmember Thomas Allen, Surprise

Mayor Neil Giuliano, Tempe
Councilmember David Lane, Wickenburg
*Supervisor Fulton Brock, Maricopa County
Councilmember Peggy Bilsten, City of Phoenix
Gary Adams, Arizona Department of
Transportation
Richard Dykas, Federal Aviation Administration
*Lt. Colonel Kris Greene, Arizona Air National
Guard
Lt. Colonel Stephen Raye, Luke AFB

OTHERS IN ATTENDANCE

Greg Chenoweth, Chandler
Mark Ripley, Glendale
Kelly McMullen, McDOT
David Krietor, Phoenix
Debbie Klein, Phoenix
Bridgett Schwartz-Manock, Phoenix
Sharon Wood, Phoenix
Scott Gray, Scottsdale
Miryam Gutier, Surprise

Oddvar Tveit, Tempe
Amber Wakeman, Tempe
Shannon Wilhelmson, Tempe
Lynn Kusy, Williams Gateway Airport
Pam Keidel, Wilbur Smith
Randal Weidemann, Consultant
Gus Nezer, Federal Aviation Administration
Tom Remes, MAG
Harry Wolfe, MAG

1. Call to Order

The meeting was called to order at 1:40 p.m. by Chairman Elaine Scruggs.

2. Review of Minutes of September 4, 2002

It was moved by Gary Adams, seconded by Peggy Bilsten and unanimously recommended to approve the meeting minutes of September 4, 2002.

3. Review of Outline of Evaluation Criteria

Harry Wolfe provided a status report on what had transpired over the past five months in developing the evaluation criteria and approach for evaluating the MAG RASP alternatives. Pam Keidel provided an overview of the evaluation criteria to be used in the study.

Gary Adams noted that four airports in the MAG Region have lower operations forecasts than MAG had forecast in the RASP. He asked if the airports were in agreement with that. Pam Keidel responded that they were based on the fact that the forecasts had been approved at an earlier meeting.

David Lane said that Airport Influence Areas should be given more attention.

Elaine Scruggs asked if going beyond the noise contours in examining compatibility issues was new. Harry Wolfe that in the past that MAG had strictly examined the noise contours, but that now we would also be looking beyond the noise contours.

Tom Allen emphasize that noise impacts and impacts on Luke Air Force Base need to be identified.

Pam Keidel commented that the consultant will look at where new projects conflict with the mission of Luke Air Force Base.

It was moved by Peggy Bilsten, seconded by Gary Adams and unanimously recommended to approve the approach for evaluating the MAG RASP alternatives as outlined in Task 5.

4. Receipt of FAA Continuous Aviation System Planning Grant

Harry Wolfe reported that MAG had received a \$70,000 Continuous Aviation System Planning grant in support of its planning activities.

5. Military Civilian Airport Coordination

A report was given on efforts to enhance military and civilian airport coordination. It was noted that Glendale had taken the lead in assembling a group of military aviation experts, and representatives from civilian airports and agencies too help foster cooperation between military and civilian airports.

6. Call to the Audience

There were no requests to address the MAG RASP Policy Committee.

The meeting adjourned at 2:30 p.m.

ATTACHMENT ONE

Comments Received on MAG RASP Update Working Paper #5

Comments on MAG RASP Working Paper #5
Offered at Meeting of Technical Staff on October 17, 2003

Debbie Klein , City of Phoenix Aviation Department

-

- Include a footnote in the report noting Phoenix's most recent forecast
- Draw a distinction between what constitutes compatible land use and disclosure requirements in state law.
- There is an inconsistency between the text related to the impact of the alternatives on air quality; and the table which reports the result of the model. This needs to be reconciled.
- Add note explaining projects that will provide improved ground access to Sky Harbor.
- Page 5.30 Table 5.15 - doesn't differentiate between positive or negative impact. This distinction would be helpful to readers.
- Page 5.47 above Table 5.21. The Alternative summary notes that New Airport Development would have a moderate impact, yet the table shows significant impact. In addition, the Alternative summary shows Maximized Airport Development would have a "Moderate to Severe" impact, but the table shows "Moderate."

George Sullivan, consultant for City of Phoenix Aviation Department

- Concern about reference to addition of a precision approach at Deer Valley increasing the possibility of mid air collisions. The report assumes that the precision approach would be achieved through ILS, yet other approach technology – such as a DGPS approach from the east - is more likely for this situation.
- Report did a good job in stating technologies; but did not explore the impacts of these new technologies on airspace. The report only analyzed straight in ILS approaches and considered them to be a negative impact. The FAA's implementation of the Local Area Augmentation System (LAAS), for example, allows for curved approaches rather than straight-in approaches. LAAS should also improve air traffic flow in the Valley.
- Delay at Sky Harbor is not a particular problem now with the addition of the 3rd runway and completion of the north and center runway rehabilitation projects. Data used for analysis of delay was based on conditions prior to completion of these three projects.
- During most hours of the day, Sky Harbor has excess operational capacity; delays occur during peak banks which occur 3 or 4 hours a day.
- The report assumes procedures for a 4th runway at Sky Harbor. However, the report should not presume procedures would be the same as they are today under Sky Harbor's three runway configuration. The IGA between Phoenix and Tempe only addresses procedures for a three-runway airport and does not address procedures under a four-runway configuration.

Chris Hacker, City of Phoenix Aviation Department

- Sky Harbor is in the midst of its EIS process to 2015. In mid 2005 there will be a record of decision. Then Phoenix could provide specific dates on the timing of projects.
- Phoenix submitted comments three months ago noting that current plans do not include a fourth runway for Sky Harbor International Airport.
- Phoenix has no plans for a third runway at Deer Valley. Instead, it is exploring the potential

of increased runway separation at a future date when needed.

- A new master plan effort is being initiated for Deer Valley and Goodyear and will explore the potential of these two airports.
- Table 5-3 refers to a 1999 Master Plan for Deer Valley and Goodyear as the source of information. The most recent adopted master plans for these two airports were completed in 1986. As noted above, a new effort is being initiated to update these plans.
- It is important to clarify that the 773,000 operations referenced in the report is most likely related to the FAA's TAFT. The FAA's approved forecast for PHX through 2015 indicates 670,000 operations.

Oddvar Tveit, City of Tempe

- All projects included in the Status Quo alternative should be listed in the Appendix
- Improved Technology is difficult to predict without knowing what will happen in the terminal airspace. There is more VFR here than in the rest of the United States
- Even with a 4th runway there is a lack of adequate capacity
- Add a box around Sky Harbor Airport
- If the south runway is extended from 7,800 feet to 9,500 feet, this may also have secondary impacts, and should be indicated in 9,500 feet third runway alternative, where the east runway threshold was extended into the Salt Riverbed. This alternative was not pursued. At the time, I believe, it was considered to be a more environmentally and technically complicated alternative compared to the 7,800 foot alternative.
- Provide more explanation of the methodology used to define boxes in the Appendix
- Look at a runway of more than 9000 feet; it needs to function for all commercial activity. Airport needs to be a compatible hub.
- It is not true that instrument approaches have a positive noise impact. The Part 150 Study for Sky Harbor says that straight in approaches will impact more people.
- Table 5.2 on page 5.4 Noise Contour Ops: I conferred with the 1996 MAG RASP Implementation Study: I read Gila Bend = 16,300 operations and Estrella = 57,300 operations (2015 contours depicted in the 1993 MAG RASP). Pleasant Valley = 74,100, Sky Ranch = 7,200 and Stellar = 58,000 operations (1993 MAG RASP) Finally that the Sky Harbor 2000 NCP update has 773,000 operations. Air Quality - question assumptions. If you relocated where are you going to accommodate growth. The issue is concentrations.

Scott Gray, City of Scottsdale

- You need to update the traffic pattern airspace for Scottsdale to reflect what is shown on the State Website
- Exhibit 5.10 Not size of pattern airspace. It looks to be half the size of what was actually submitted.
- It may not be the charge of this consultant, but there needs to be an examination of how airports affect other airports, not just Sky Harbor. The concern is that airports are identified for precision approaches which could negatively affect their neighboring airport.
- Deer Valley Precision Approach may impact Scottsdale

- Parallel taxiway at Scottsdale is done.
- Precision approach could be GPS/RNAV and not necessarily a straight in for an ILS

Terry Hansen, Luke Air Force Base

- First if you want to know the impact of any improvement or new development at a airport that will change or increase operations you must look at the complete airspace picture, the enroute airspace structure is the one area that will have the biggest impact on military SUA. Until this study or some other study does a complete study of the airspace in the area we will not know what type of development the area can handle and not impact the military mission in the State. When they did NW 2000 the military mission was impacted, our main refueling track was moved close to 17 miles further from our training areas adding a cost and loss of training time to our mission. With the location of 2 large and very important MOA's very close to the valley any change to the enroute or let down procedures could impact the ability of the states military to use that airspace when required to train and meet their mission.
- The Aux 1 field and GBN Air Force Aux are not on any of the maps or attachments. If people want to make a decision on the impact to the military mission they need all the facts and locations of the military resources. Also as you know the community airport at GBN is getting very busy and with the military base just south doing close to 35,000 ops per year we need to insure all the facts are available to the public and communities.
- The PHX regional airport could have a impact on the valley and military mission in the southern airspace (MTR's, SUA) if we do not show the location of this new airport we can not make a sound decision on future growth.
- Luke's traffic patterns are not on any chart, all other airports are. Need Luke's patterns so all can see how each airports patterns impact each other.
- Luke submitted our concerns on all airports changes, development based on possible impact ranging from the lowest to highest, the study used the lowest, so when someone reads the report they see a different picture then what was intended. All west valley airports have the potential to have a major impact on Luke's mission with any change to their current operations. Any type of approach at Buckeye with the wrong let down could impact Luke, this can be said at Goodyear, Glendale, Deer Valley as well. I hate to say it but maybe we should have just said severe on all. We need something to show the readers what Luke's concerns are.
- Any expansion of Williams Gateway Airport could have an impact on jack/outlaw this again is based on the type of change and how it impacts the airspace structure.
- The study should show the correct noise data based on the state statue. 1988 MAG study.

Ray Boucher, ADOT, Aeronautics Division

- Exhibit 5.1: Missing Gila Bend Auxiliary Field; Luke Auxiliary Field #1 (should be indicated on all county-wide exhibits.
- Page 5.3: 6th Line; Consider adding/changing to 60 DNL as this is the approved noise contour for the Airport Disclosure Maps in Maricopa County (Counties with populations in excess of 500,000).

- Page 5.5: Noise impact boxes need a much more thorough examination. Recommend a reference to the Appendix and in the Appendix, a more definitive explanation of how these boxes compare/differ with Disclosure Maps, Airport Influence areas and what purpose they serve in the analysis. It might be better to split the MAG area into an "east" side and a "west side" and explode the airports that reside in each with only a residual idea how it "fits" into the whole picture. By the way, if there are any differences between these three exhibits, I certainly couldn't find any in the graphic depictions.
- Page 5.7: Memorial Airfield is currently "private use" and it needs to be indicated that the condition of the runways are poor and probably impact the number of operations that can be flown there.
- Page 5.10: Improved and Maximized Technology needs to include LAAS (Local Area Augmentation System) and that Phoenix Sky Harbor Int'l is one of the primary test facilities in the nation for this system.
- Page 5.12: Forepaugh is no longer considered as an alternate site for the relocation of Wickenburg. The military had a great deal of negative reaction to this proposal and the Town withdrew this alternative from consideration in their most recent Master Plan update. This should also impact some of the assumptions made in follow-on paragraphs/sections
- Exhibits 5.5 thru 5.13: Incorrectly indicate Stellar and Memorial Airfield on the exhibits.
- Page 5.44: New Forepaugh - has an impact on Luke AFB if it replaces Wickenburg.

Mark Meyers, City of Mesa

- Reexamine the disclosure map for Falcon Field on 5-15. Traffic pattern needs modification
- Examine noise contours. They seem overly aggressive
- Overlaying existing approaches is better than new approaches.

Mark Ripley, City of Glendale

- Glendale runway is completed.
- I will send in my comments

Greg Chenoweth

- Page 5-13 - with new airport you show reduction in traffic at Chandler by 25% but no reduction in noise.
- Page 5-22 Revising ALP to include a shorter extension 5650 feet.
- Paragraph on page 5-24 should say 20.2 billion instead of 20.2 million
- Page 5-32 and 5-33 - if new airport development will increase traffic, won't it decrease user development
- Approach 5-39/5-46/5-56 Current ALP has no precision approach and it is not anticipate. A non precision or circling approach would be adequate. There is no ILS approach needed at Chandler.
- Regarding Title VI impacts, want to know how the percent of population and housing units in the contours was determined.

- Traffic pattern airspace seems too large. Use Arizona Department of Real Estate maps.

Kelly McMullen, Maricopa County

- Employment figures may not be relevant. Availability of facilities is more important than driving distance.
- Exhibit 5.9 wrong restricted airspace over Luke
- Exhibit 5.9 needs to be changed.
- What is the status of the new Peoria Airport
- The labels non-precision approach vs. precision approach may become meaningless very soon because GPS WAAS based LNAV/VNAV approaches can have minimums of 250 feet AGL and ½ mile visibility versus 200 feet and ½ mile for ILS. (traditional non-precision approaches never had minimums lower than 400 feet. AGL and most were 600 feet or higher).

Luke Air Force Base

-----Original Message-----

From: Hansen Terry Civilian 56 RMO/ASM [mailto:Terry.Hansen@luke.af.mil]

Sent: Monday, October 20, 2003 6:56 AM

Harry, some points not addressed in my last paper.

1. Study does not address Aux 1 or GBN Air Force base. Both should be added to all maps or exhibits
2. Exhibit 5.9 out dated should be replaced
3. Exhibit 5.10 traffic patterns for all 3 Luke fields missing, need to be added.
4. Impact on Luke Airspace. this section looks at the impact of this study on Luke's airspace but does not use the data submitted. each airports improvement could have a impact of Severe or less based on type of improvement. Luke listed the impact but the study took the least restrictive and used it on table 5.20.
4. Impact on regional airspace. study does not address the regions airspace issues. In order to make a sound decision on future development of the regions ability to handle increased operations of any type a complete and through study of the airspace must be done, this must look at terminal as well as enroute structure. A look at the airspace shows that the military has a large portion of its needed special use airspace very close to the region, we must understand how any change to the region airspace needs will impact that airspace. Any loss of that airspace will have a impact on the states military to meet its current and future mission requirements.
5. Improved Technology alternative. This section needs to be rewritten to explain each new technology and how it would impact the region. A GPS approach would not have the same impact as an ILS, RNAV approach will have a different impact. Suggest it be broken down into type of improvements.

Terry C Hansen
Airspace Manager
56FW/RMO
Luke AFB, AZ
DSN 896-5855
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SEMPER FI



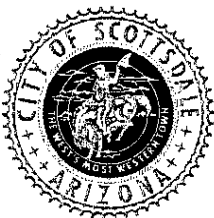
GLENDALÉ MUNICIPAL AIRPORT

MEMORANDUM

Date: October 21, 2003
To: Harry Wolfe, Senior Project Manager
From: Mark Ripley, Airport Manager
Subject: Comments Working Paper No. 5

I have reviewed working paper No. 5 and only have a couple of comments on items that impact Glendale Municipal Airport.

1. Table 5.2 list noise contours from an EA in 1998. The only accessment we have for 1998 is the most recent Master Plan Update. The EA for the runway expansion project was completed in 2001. The Part 150 study was completed in 1994.
2. We agree that the negative impact of instrument approach procedures on other airports is too general. The impact of improved technology (instrument approaches) may need to be evaluated individually by method type.
3. Does there need to be any discussion about the likelihood of obtaining funding for the construction of new airports?
4. I have included the most recent disclosure map for the Glendale Municipal Airport.

**Aviation Division**

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October 27, 2003

Mr. Harry P. Wolfe
Aviation Program Manager
Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, AZ 85003

Re: Regional Aviation System Plan Update, Alternative Evaluation – Working Paper 5

Dear Harry:

I have reviewed Working Paper No. 5 – Alternative Evaluation of the Regional Aviation System Plan Update. I appreciate the opportunity to provide technical comments prior to the Policy Committee review. The following comments are submitted for consideration:

The text regarding Primary and Secondary noise impacts on page 5-6 needs more explanation. It is unclear as to the use of these areas and their definitions. Specific changes to the Scottsdale section on page 5-8 are as follows:

"The airport Scottsdale City Council has appointed the City Council Advisory Subcommittee on Noise-Regional Aviation Issues that has to assist in the development of a pilot/community education and outreach programs to advocate the use of abatement programs, along with the new "Pilot Noise Abatement Pledge" program, and a voluntary curfew."

In regards to New Airport Development Alternative, operations from Scottsdale are identified as possibly moving to a new airport if developed, specifically 20% to the New Peoria GA or 15% to the New North Commercial airport. While it is appropriate to assume operations will move from an existing airport to a potentially new airport, these percentages seem high in relation to Scottsdale and the locations of these proposed airports. General aviation activity at Scottsdale is primarily associated with business aircraft. It is not likely that this percentage of operations is going to move to an airport beyond Deer Valley Airport. As for the New North Commercial option, the purpose of developing a commercial airport is to separate general aviation from that type of activity. Once again, it is not likely that this percentage of Scottsdale traffic would choose to utilize this proposed location.

Mr. Harry P. Wolfe
October 27, 2003
Page 2 of 2

Page 5-22 refers to airport development cost at each of the airports. Scottsdale is identified to include a parallel taxiway, lighting, terminal building and a precision approach. The parallel taxiway and lighting projects were completed in December 2002, thus, should be removed from the development costs. The reference to the parallel taxiway should also be removed throughout the document.


In regards to Airspace Compatibility beginning on page 5-37, the traffic pattern airspace graphic [Exhibit 5.10] does not reflect the appropriate size of such airspace as it relates to Scottsdale Airport. The graphic submitted by the City of Scottsdale and included in Appendix A, should be used to identify the size of the traffic pattern at Scottsdale Airport on all graphics.

On page 5-44, discussion is included regarding the ability to accommodate a precision approach at Scottsdale Airport. Currently, the Precision Approach Path Indicators (PAPIs) at Scottsdale are set at four (4) degrees. It should be assumed that a precision approach would be set to the same approach angle. The discussion also appears to assume the use of an ILS, or at least the criteria of an ILS, for determining the impacts on airspace. The technology exists today that would not require a twelve (12) mile final approach, thus additional clarification of other criteria should be indicated.

Additionally, the interaction with Phoenix Sky Harbor and Luke AFB [Table 5.20] are not the only issues when discussing airspace. Any neighboring airports' development of a precision approach may result in impacts to the other neighboring airports. Some discussion should be included to indicate the airspace interactions between neighboring airports.

Thank you once again for the opportunity to comment. If you have any questions, or require further clarification, please contact me at (480) 312-7735.

Sincerely,



Scott T. Gray, C.M., C.A.E.
Aviation Director

October 27, 2003

Mr. Harry Wolfe
Senior Project Manager
Maricopa Associates of Governments
302 North 1st Ave., Suite 300
Phoenix, AZ 85003

Dear Mr. Wolfe:

1. As the Study speculates on future airport enhancements, please state how relevant bringing higher technology approach systems overlaid on existing/established instrument procedures provides a lesser impact on surrounding land use than do newly established IFR routes. Simply enhancing existing IFR routes can mitigate noise sensitivity. In today's environment there needs to be great justification to design entirely new approach routes over present ones.
2. We would like to review the land use maps you have used to date. As ADOT stated, the definition of a "noise box" needs to be defined so similar consideration is given to all airports.
3. We understand the airport meets all safety standards and appreciate those indicators and statements in the report.
4. We understand an ILS will impact the airspace system negatively so narration on better alternatives should be detailed.

We look forward to an early discussion with you on study issues.

Sincerely,

Mark Meyers
Airport Director

cc: Jeff Martin



October 28, 2003

Mr. Harry Wolfe, Senior Project Manager
Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, Arizona 85003

Subject: MAG RASP - Draft Working Paper 5 - Alternatives Evaluation

Dear Harry

Thank you for the opportunity to review the draft for MAG RASP Working Paper #5, Alternatives Evaluation, and to participate in the technical discussions on November 17, 2003 regarding preliminary responses to the present draft.

The paper is the 5th in a series of working papers previously presented and approved by the MAG RASP Policy Committee. Working Paper # 5 deals with evaluation of airport development alternatives presented in Working Paper #4. In November 2002 MAG released an outline for Working Paper # 5, which included the criteria that the MAG consultant proposed to use to evaluate the proposed alternatives.

The City of Tempe has review the draft with the vision that the document should provide guidance in the complex task of identifying alternatives and the positive and negative aspects of choosing between development scenarios for airports in the MAG region. We have previously in our comments to Working Paper # 4 addressed how many of the alternatives are hypothetical in terms of making actual choices between them, i.e. technical development versus maximized airport development. This has also influenced the evaluation exercise by the fact that we are left with a mix of relatively complex and detailed evaluations under one alternative, the Maximized Airport Development alternative and more theory and assumptions in the evaluation of other alternatives.

1. Development Alternatives:

Status Quo alternative:

This alternative is a "do nothing" baseline for comparing the other alternatives. Programmed projects are not listed in pervious papers, except for runway extensions at Buckeye, Wickenburg, and Glendale. (The Glendale extension is completed). It is difficult for the reader to determine what the alternative really includes. Some projects are described in Airport Master Plan updates not referenced in the document, others plans are not applicable because they have been shelved in a situation of revenue shortages. As an example, the addition of gates at Sky Harbor under this alternative is partly projected in the 1989 Master Plan and put forwards in layout plans submitted to the FAA as part of the grant request for the West Terminal Complex. The project is currently subject to an EIS where the FAA evaluates the proposed project together with other alternatives. The proposed project will consolidate and expand gates presently situated in Terminal 2, free up gate capacity in Terminal 4, and be an important improvement to capacity at Sky Harbor. Adding an appendix with the programmed projects would be beneficial to determine what improvements are included under the Status Quo alternative.

Improved Technology alternative:

This alternative is to a large extent dependent on decisions made by parties outside the MAG, the airlines the FAA and the general aviation community at large. We have previously questioned the benefit of including an alternative that deals with improvements to navigation technology, ADS-BCDTI, LAAS, DGPS etc., which potential benefits are largely unknown and may be limited due to local conditions. In 2001 the FAA expected that improved technology and flight procedures (FMS/RNAV) would improve Sky Harbor's capacity benchmark to 141-150 over the next decade. With a third runway and no improvements to technology and flight procedures capacity rate under optimum weather conditions are 137-146. Under bad weather no improvement of the airport's capacity benchmark is expected¹. For commercial aviation the applicability of modern satellite navigation RNAV inside the airports terminal areas has become more uncertain after FAA decided to reevaluate how new procedures are to be integrated into the existing environment of "classic" procedures. Under the summary evaluation these uncertainties are acknowledged by the statement that "true impacts of improved technology are not clear". It raises the question as to the benefit of listing this as a development alternative for the members of MAG, or instead have 3 development alternatives, listing expected technology improvements within the planning period as a separate item. However this entails a revision of papers already approved by the MAG RASP policy committee, which goes beyond the scope of the request to comment on the draft Working Paper #5. Because the implementation of ILS technology is not subject to evaluation as improved technology, but as airside improvements under the Maximized Airport Development alternative we find it appropriate to mention this being an option.

Maximized Airport Development alternative:

The alternative is a compilation of separate expansions at each individual airport in the region based on projected demand and current ASV (Annual Service Volume), except for Sky Harbor where peak hour capacity is used. These are the airports in the region where demand is expected to exceed 80% of present capacity. The evaluation of the alternative does not include any ranking of where or which types of improvements are most needed to satisfy demand for increased airport capacity in the region, nor whether maximized developments of one airport excludes or limits the maximized development of another airport. Working Paper #5 includes however an evaluation of potential airspace conflicts that would impact Luke AFB and Sky Harbor operations. For Sky Harbor the addition of a 4th runway and additional gates proposed under this alternative are not sufficient to satisfy projected demand through 2025 for this airport according to RASP projections. A 4th runway is expected to increase airfield capacity with 5 to 12 %. An extension of the south runway from 7,800 feet to 9,500 feet is included under this alternative.

New Airport Development alternative:

Includes 2 GA airports, new commercial airport north of Phoenix and south at Casa Grande, and the expansion of Williams Gateway. We have argued and got a consensus on using peak hour capacity instead of ASV (Annual Service Volume) to determine Sky Harbor future demand. However the evaluation still use ASV to determine the need for additional commercial capacity. In Working Paper #5 100 commercial departures per day as well as room for GA activity are assumed as sufficient. The need for additional peak hour capacity was identified in previous demand capacity analysis. New commercial airport facilities would need to have a peak hour capacity of 28 to 37 under growth scenario 1, and 68 to 77 operations under scenario two. This entails accommodation of all types of aircraft in the Sky Harbor fleet mix during hours of high demand to supplement Sky Harbor. A 9,000 feet runway and parallel taxiways as suggested for new regional airport construction based on adding commercial annual service volume might not be sufficient under the assumption of adding supplemental peak hour capacity to the airport hub system. This includes the need for accommodating aircraft at or over 60,000 lbs that would need runway lengths of 11,000 feet according to estimates included in Working Paper #3. The expansion of Williams Gateway under this alternative does not include a new east west runway alternative, however it is included in the Maximized Airport Development alternative. It is also interesting to see that this alternative at Williams and a 4th runway at Sky Harbor is not evaluated as alternatives to building two new commercial airports in the region.

2. Alternatives Evaluation

¹Source: <http://www1.faa.gov/events/benchmarks/DOWNLOAD/pdf/23-Phoenix.pdf>

The Environment:

Noise

Tempe addressed at technical staff level the need for a methodology to assess noise impacts for the different alternatives. We did not get accept for doing any noise modeling. In the current draft impact "boxes" around airports are introduced to identify potential areas of noise impacts beyond the areas covered by noise contours projected by airports in separate studies and by previous editions of the RASP for different years. However the draft does not contain any determination criteria for the size of these boxes. DNL noise contours are determining land use compatibility according to federal guidelines, and the impact boxes should be comparable to the approved noise contours. It is difficult to have any opinion on the sizes of these "boxes" without knowing the criteria used to determine their size. Operations projected for existing noise contours were used to determine the validity of the contours in relation to demand projected in Working Paper # 2 for 2025. It seems that for Estrella, Gila Bend, Pleasant Valley, Sky Ranch and Stellar, where contours from the 1986 and 1993 RASPs are used, the operation forecast numbers are overstated based on numbers reported in the 1996 MAG RASP Implementation Study. Expected operations levels are only one of several parameters used to come up with DNL noise contours, fleet mix, runway use and flight profiles are other important elements.

Status Quo alternative:

Under the Status Quo alternative the report does not mention that for Sky Harbor there has been changes in both fleet mix, runway use and flight profiles compared to what was used to model noise contours for 1999, 2004 and 2015. The report includes however several assumptions as to where noise impact may occur, but it is as mentioned not clear how the additional, or secondary noise impacts is generated. The report should clarify the basis for these impact assumptions. Under a status quo alternative one would assume that there should not be as many new secondary impacts as outlined if runway use and flight profiles are kept constant, and fleet mix is expected to include a larger portion of newer more noise compliant aircraft. For Buckeye, Glendale and Wickenburg the report should include an assessment of whether programmed runway extensions can accommodate a change in fleet mix and potential noise impact.

Improved Technology alternative:

The noise impact under the Improved Technology alternative is assumed to be the same as for status quo. It should be noted that because it is not known which technology alternatives could become subject to implementation in the Phoenix terminal area, it is not clear what noise impacts this could have. Because the RASP evaluation is focused on noise impacts inside the 65DNL the scope is to a large extent limited when it comes to identification of noise benefits of new technology to the community at large. Impacts are also dependent on both the access and ability for pilots and air traffic controllers to make use of newer technologies and the flight procedures that will be developed as a result of FAA's implementation policies.

Maximized Airport Development alternative:

Under the Maximized Airport Development alternative instrument approaches are not assumed to have noise impact. This is arguable. For smaller GA airports where there are no ILS approaches the final approach paths can be extended and impact more non-compatible land use areas. For the side-step noise mitigation arrival procedure to the south parallel runway at Sky Harbor, the 2000 Part 150 Noise Compatibility Update has identified that a straight in approach alternative includes additional residential areas in Tempe to the 65DNL exposure contours. For airports where the alternative includes longer runways or additional runways, potential new noise impacted areas were identified. Criteria for determination: Location of runway expansion, existing noise contours and projected fleet mix. For Sky Harbor an estimate as to the noise impact area for a 4th parallel runway north of Runway 8-26 is indicated, however not impacts of an extended south runway. For Sky Harbor it would be under these random assumptions appropriate to include a larger square around present noise contours. Both runway use and flight paths will be substantially changed under the maximized airport development alternative. The noise impact can in our opinion only be properly assessed with development of new noise contours for each airport being considered for expansion.

New Airport Development alternative:

For purposes of the RASP analysis of the New Airport Development alternative, it is assumed that one new GA and one new commercial service airport would be developed in the Region, including use of the existing Williams Gateway Airport as a commercial facility. There are several scenarios, and the draft does not include on which basis this assumption is made. The draft also assumes that the new facilities will likely reduce the size of areas impacted by noise at several existing airports. This is based on the hypothesis that demand, or aircraft operations are reduced during the planning period because of new airport development. For the MAG region it is a question of where to accommodate expected growth in demand for more airport capacity. A general assumption of reductions in size of areas currently impacted by noise because of new airport development is under the projected growth estimates difficult to make.

Air Quality

The analysis includes a low and high growth scenario where the annual number of operations remains the same under all alternatives except the New Airport Development alternative. A high and low growth scenario applies to Sky Harbor, and is not estimated for other airports in the region. Because future concentrations of emissions are not considered only emissions from adding new airports are identified in the modeling of air quality. Only under this alternative projected operations are expected to vary based on the addition of new airports. Adding runways to existing airports are expected to reduce emissions from aircraft ground operations, but because annual operations remain the same in the region these impacts are not considered. The draft does not evaluate regional challenges with airport expansions within populated parts of a new 8-hour ozone non-attainment area, one of which is the expected level of annual CO contribution from other sources to the vehicle emissions budget. Particulate matter is not addressed.

Status Quo alternative:

Several of the smaller GA airports have the potential of accommodating future demand under the Status Quo alternative. In a situation of predicted high demand and rural expansion throughout the planning period it is difficult to assume any significant reallocation of operations and emissions away from airports that have high demand due to their central location to population and other emission sources. The same issues for the evaluation of emissions arise as when operation levels are used as the only measure to identify changes in noise exposure. At Sky Harbor runway operations were changed to facilitate traffic flow with all three parallel runways in operation during hours of high demand. Aircraft are lined up for take-off on the center runway where over 80% of all departures are normally directed. This creates a need for holding areas and crossing points for taxing aircraft. Additional taxiway improvements and relocation of airline gates already programmed under the Status Quo alternative might improve the situation, but the projected growth scenarios for Sky Harbor presented in Working Paper #2, limits how much ground operation can be made more efficient.

Maximized Airport Development alternative:

Emissions from ground operations do not necessarily improve by adding runways, particularly at Sky Harbor with its close-spaced parallel runway configuration. The draft does not sufficiently account for the assumption that adding runways or making other improvements to existing airports that facilitates the expected increase in air traffic levels in the most congested parts of the region, will reduce or not add emissions beyond the Status Quo alternative.

New Airport Development alternative:

Adding new airports means adding new sources for VOC, CO, Nox, and SO² emissions. The draft leaves the reader with the impression that this is the only alternative that negatively impacts airport emissions.

Costs and Economic Benefits:

Costs

Maximized Airport Development alternative:

The majority of costs for the Maximized Airport Development alternative are linked to building a 4th runway and additional terminal and vehicular parking. Additional costs included in Appendix B include \$28,3 million for extending the south runway to 9,500 feet and the costs for terminal expansions. These costs are estimated to \$687,5 for an additional 2.5 million square feet of terminal space under growth

Scenario 1 and \$1,07 billion for an additional 3.9 million square feet under growth Scenario 2. Working Paper #4 refers to terminal space needed in addition to the 2.4 million square feet available in terminal 2, 3 and 4. It is unclear as to how the development costs indicated in Working Paper # 5 Appendix B relates to the costs for programmed projects under the Status Quo alternative. This alternative includes the West terminal expansion, a consolidation of existing terminal 2 and 3 at Sky Harbor. Compared to the Status Quo alternative it would seem that the costs for development of additional terminal areas under the Maximized Airport Development alternative are overstated.

Benefits

The draft does not indicate economic benefits related to the different alternatives. It would have been useful to have some measure of where incurred costs could give the most benefits from a regional perspective based to projected population growth, transportation infrastructure development and rural expansions within the planning period. The continued allocation of large economic resources to the development of Sky Harbor in the Phoenix under the Maximized Airport Development alternative should be evaluated in terms of added economic benefits to the region compared to the development of new airport capacity closer to areas of future valley growth. In its present form this section does not give guidance to the evaluation of the different alternatives.

Delay:

Status Quo alternative:

The delay projections have been disputed in our comments to the RASP capacity/delay analysis included in Working Paper #3. Delays are not a capacity constraint at Sky Harbor, and recent FAA OPSNET data confirm that delays are on the decline in the Phoenix area². Those delays that do occur are due primarily to weather at destination airports or weather enroute to destination airports, which consequently delay Phoenix departures. Other delays result from traffic congestion at congested hub airports in the national airspace system, which limits the ability of controllers in the enroute air traffic system to accept or deliver aircraft to and from the terminal area. None of these impediments will be resolved by additional airports, lengthened runways or additional runways. Under the Status Quo Table 5.1 existing operating capacity for Sky Harbor is indicated to be 139 per hour. The FAA 2001 Benchmark Report estimates that with the new third runway, technology and improved procedures is expected to increase Phoenix capacity benchmarks by 40% to 141 - 150 per hour compared to 101-110 with the previous two runway configuration³. This gives reason to believe that Sky Harbor with programmed projects included in the Status Quo alternative have higher capacity than 139 operations per hour.

OPSNET : Delays Report
Calendar Years : From 1992 To 2002
Facility : PHX

Facility	Calendar Year	Total Ops	Total Delays	Delays By Category				Delays By Class				Delays By Cause				Delays Per 1000 Ops	Avg Time (Min)	Total Time (Min)	Percent Ops Delayed		
				Departure	Arrival	Enroute	TMS	Air Carrier	Air Taxi	General Aviation	Military	Weather	Term Vol	Center Vol	Equip					Runway	Other
PHX	1992	492739	4000	3373	132	0	495	3909	59	23	9	1234	2288	31	340	48	59	8.11	24.35	97414	0.81
PHX	1993	529912	1515	780	149	0	586	1464	29	20	2	766	581	2	93	47	26	2.85	28.14	42643	0.28
PHX	1994	497119	1925	1046	66	0	813	1863	44	17	1	979	818	3	38	33	54	3.87	31.05	59786	0.38
PHX	1995	546757	2862	2067	47	0	748	2771	69	16	6	978	1616	19	148	50	51	5.23	27.25	78011	0.52
PHX	1996	526648	4267	3937	18	0	312	3914	257	91	5	985	2804	8	274	4	192	8.10	23.97	102289	0.81
PHX	1997	534550	5317	4429	146	1	741	4973	277	53	14	1511	3216	26	96	63	405	9.94	26.78	142440	0.99
PHX	1998	529649	11757	9356	388	0	2013	10515	853	339	50	4150	5437	47	46	54	2023	22.19	27.29	320932	2.21
PHX	1999	563843	11919	10218	204	0	1497	10088	1524	274	33	4193	5258	249	95	874	1250	21.13	27.11	323168	2.11
PHX	2000	638757	14024	10297	677	0	3050	12351	1477	168	28	6017	5107	688	239	1216	757	21.95	31.98	448500	2.19
PHX	2001	606666	9292	6108	194	0	2990	8650	533	104	5	4830	3083	697	138	294	250	15.31	32.90	305732	1.53
PHX	2002	590329	8700	7284	140	0	1276	7923	684	86	7	3145	2496	1803	93	597	566	14.73	26.76	232829	1.47
Total		6056969	75578	58895	2161	1	14521	68421	5806	1191	160	28788	32704	3573	1600	3280	5633	12.47	28.49	2153744	1.24

²Source: OPSNET Delay Report - Williams Aviation Consultants

³Source: <http://www2.faa.gov/events/benchmarks/DOWNLOAD/pdf/23-Phoenix.pdf>

Maximized Airport Development alternative:

Developments proposed under the Maximized Airport Development alternatives have the potential of increasing air traffic complexity and ultimately result in increased delays. The draft does not address, which types of developments have the best potential of reducing the cost of delay. As an example introducing radar coverage to the ground at Scottsdale and coverage at Deer Valley have the potential of improving the efficiency of air traffic operations at these airports. This type of evaluation should be part of the cost benefit analysis of the development alternatives. To single out cost of delay as a generic cost related to ASV, that is assumed to increase without runway expansions or development of new airport capacity, is inaccurate.

User Convenience:

User convenience under the Maximized Airport Development alternative is assumed to be similar to the Status Quo alternative. At Sky Harbor the Status Quo entails adding terminal and parking space capacity, building a large car rental facility west of the airport, and an automated people mover system that will relieve shuttle bus services between parking and terminal facilities. Sky Harbor Boulevard is used as a commute to Phoenix for large groups of east valley residents. Under the Maximized Airport Development alternative more gate and parking space capacity is identified. Even with the planned enhancements to valley transportation infrastructure, i.e. widening of Interstate 10, and a future link to the light rail, adding a 4th runway, more terminal and vehicle parking space will result in an expansion of the service area and add time for passengers to access the airport. Improvements in the valley transportation system that can have impacts on Sky Harbor access are not addressed. There is no explanation as to why Sky Harbor is only mentioned under the Phoenix/East Valley Light Rail Project, and not included under the evaluation of roadway access for individual airports.

Airspace Compatibility:

Impact on Luke AFB Airspace

The focus of evaluation is the impacts on operations at Luke AFB and Phoenix Sky Harbor in order to protect the airspace need for these airports in the future. Exhibit 5.10, "Traffic Pattern Airspace" does not include Luke AFB, and it is also difficult to interpret. A map of main flight paths around each airport would give a more accurate picture of the regional airspace system. Because focus is on Luke AFB and Phoenix Sky Harbor airspace, these airports' airspace needs to be better depicted in the exhibit.

Status Quo alternative:

Under Status Quo impacts on Luke AFB deals with runway extensions at Buckeye, Glendale and Wickenburg. To get a more complete picture of impacts on Luke AFB under a "do nothing" alternative, the other airports should be included in the evaluation. Under Status Quo the use of precision approaches to the runways at Sky Harbor is a constraint on Luke airspace. Today Sky Harbor needs to use (borrow) Luke airspace to operate dependent ILS approaches from the west, but Class B airspace would need to be expanded towards the west to fully make use of the system. Sky Harbor has under the Status Quo alternative potential of facilitating independent ILS approaches to the outer runways, which would increase overall east flow capacity at Sky Harbor to the detriment of Luke AFB.

Maximized Airport Development alternative:

As indicated above, the description on page 5.40 of Sky Harbor precision approach impacts to Luke AFB's access to SUA is a Status Quo description. A 4th runway at Sky Harbor would impact current runway use and flight procedures for Sky Harbor and change the traffic flows within the Phoenix airspace. Impacts on Luke AFB beyond the few periods of the year with bad weather days are likely.

Impact on Regional Airspace

Improved Technology alternative:

It is uncertain whether or not there will be an increase in the number of hourly instrument operations that can be conducted at the Scottsdale and Deer Valley airports with improved radar coverage. The air traffic controller has to determine priorities based on workload, the complexity of the traffic situation and the

capacity to assume additional workload. An increase in capacity at one airport may result in a reduction in capacity at another due to the controllers' inability to provide unlimited services to both airports.

Maximized Airport Development alternative:

With a 4th runway at Sky Harbor the GA access through Phoenix airspace would likely get more complicated. With the third runway and the additional improvements of the airspace to make use of the increased capacity at the airport, transitioning through the airspace to access valley airports to the north and south became a serious challenge for GA. AOPA has pursued this locally through the PAUWG. Because the evaluation has its main focus on impact on Luke AFB and Sky Harbor airspace, the airspace impacts of adding a 4th runway and extending the south runway is left with only a cryptic remark on page 5.44. The phrase "Airport under discussion" needs to be explained. The facilitation of more commercial capacity at Sky Harbor means that airspace redesign measures are going to be implemented by the FAA. This will have important impacts on the available use of the airspace not only for military operations out of Luke AFB, but for traffic at other airports in the region as well.

Title VI:

The draft uses the 65DNL noise contours and potential impact area boxes to indicate potential areas where the development alternatives can have "disproportionately" high or adverse effects on low-income and minority populations. At Sky Harbor these areas are estimated to include a total of 7,861 acres. None of the developments evaluated have been found to cause disproportionately high and adverse human health and environmental effects on low-income populations in the county. The conclusion is that based on the argument that the noise presently impacting areas with moderate to high amounts of low-income at Sky Harbor, Stellar and Memorial airports is not induced by any of the alternatives.

Status Quo alternative:

Currently the residential areas inside the 65 and 70 DNL noise contours most impacted by Sky Harbor operations are predominantly inhabited by low-income and minority populations. Communities located to the west of the runways and Interstate 10 are offered a voluntary acquisition and exchange dwellings program mentioned on page 5.8 in the draft. The objective is to reallocate these communities outside the 65 DNL noise contours.

Maximized Airport Development alternative:

Relative to an impact area of 7,861 acres adverse human health and environmental effects for low-income populations around Sky Harbor because of adding a 4th runway is not considered to be disproportionately high. If the basis for evaluation is interpreted to include the magnitude of potential impacts⁴, it can be argued that the adverse impacts borne by a minority population and/or a low-income population in the areas presently targeted in the City of Phoenix reallocation program already is disproportionately high. The more severe impacts or impacts greater in magnitude that might affect larger portions of this population group compared to the adverse impact that will be imposed by the non-minority/or non-low-income population within the projected impact area should be examined under a 4th runway expansion alternative. This perspective gets lost when the evaluation does not discriminate between the magnitude of impacts inside projected 65DNL noise contours and the boxed impact areas.

FAA/ADOT Design Compliance:

Runway Length

New Airport Development alternative:

As mentioned above the identification of runway lengths at Williams Gateway Airport currently does not meet the recommended design compliance criteria because the right (primary) runway is 9,301 feet long. However the airport has a center runway that is 10,201 feet long, and the left runway 10,401 feet long. This should be taken into account for new commercial airport development in the region. The proposed C-III design compliance requirement of 9,000 feet runway for new commercial/RAFA airport development does not seem to be sufficient, see comments above.

⁴Source: DOT Order 5610.2 Appendix 1. g(1),(2) and EO 1289

Runway Strength

Status Quo alternative:

The identified need for runway strength upgrades at Buckeye, Chandler, Glendale, and Wickenburg airports to satisfy more demanding reference codes, has become a more relative issue after the FAA announced their intention to review aircraft access restrictions because of runway weight certifications⁵. This can impact the forecasted size and types of aircraft that in the future will be able to operate from airport in the region without strengthening the runways.

Runway -Taxiway Separation

Status Quo alternative:

With D-V proposed as sufficient for Sky Harbor to accommodate future demand, the airport can accommodate carrier jets with 171 feet up to but not including 214 feet wingspan. Sky Harbor has been successful in attracting transatlantic service to the region, which made it necessary for the airport to make improvements to taxiway separation to accommodate the aircraft with up to 199 feet wingspan, the B777.

Maximized Airport Development alternative:

Under the Maximized Airport development alternative adding a 4th runway is not expected to require an upgrade of ARC from the existing D-V classification. According to evaluations in Working Paper #3 the airport satisfy approach category C and D aircraft with a separation between runway centerline and taxiway centerline of 400 feet. Because of the relatively limited areas potentially available at Sky Harbor to facilitate such an expansion towards the north with the neighboring Southern Pacific Railroad and Jefferson Street, the facilitation of dual parallel taxiways for a 4th runway under D-V is an issue.

New Airport Development alternative:

Under the present scope of planning for additional commercial capacity for 2025, the potential need for a commercial facility to accommodate very large aircraft, ARC D-VI, should be addressed. Southwestern hubs competing with Sky Harbor in keeping and attracting new international service are prepared to be ready to accommodate the next generation of very large commercial jets. The Airbus A-380 with a wingspan of 261.8 feet, which enters into service in 2006, can be accommodated at Denver and at Los Angeles with the north runway system design.

Summary:

The summary should include an evaluation metrics where the different airports are listed and weighted according to costs and impacts of each alternative. It would make it easier to get the complete picture of the summary evaluation.

If you have any questions, please contact me at 480 350 8300 or e-mail oddvar_tveit@tempe.gov.

Oddvar Tveit
Aviation Coordinator
City of Tempe
480 350 8300

Copy: Randy Gross, Shannon Wilhelmsen, David McNeil

Attachment:

⁵Source: http://www.nbaa.org/airports/FAA-2003-15495_20030701.pdf

October 28. 2003

Mr. Harry Wolfe, Senior Project Manager
Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix. Arizona 85003
Re: Feedback on the MAG RASP Working Paper No.5

Dear Harry:

Thank you for the opportunity to review and comment on the MAG RASP Working Paper No.. 5. As you know, the City of Phoenix owns and operates three airports - Sky Harbor International, Deer Valley and Goodyear. Our comments will focus on the report's content as it pertains to our airport system. Below are general comments on the report's content. More detailed comments are included in the attached summary.

Alternatives

The Maximized Airport Development alternative includes a 4th runway for Phoenix Sky Harbor and a 3rd runway for Deer Valley Airport. Our current master plan for Sky Harbor does not include a 4th runway. Further, our plans for Deer Valley are to retain two runways, but provide greater separation between the two runways to improve efficiency.

Environmental- Noise

The report uses Part 150 projections to assess future noise contours for Sky Harbor. The Federal Aviation Administration (FAA) has recently updated projected operations for Sky Harbor as part of the on-going Environmental Impact Statement (EIS) study for the West Terminal Development. Forecast operations for Sky Harbor in 2015 are 670,000.

The report assessed "primary" impact areas for airport noise based on a combination of noise contours and consultant-developed boxes. The boxes, as explained at the October 17 Technical Review meeting, represent projected noise contours that have been squared-off to form a rectangle. These boxes were then overlaid on the 2025 land use plans to determine extent of compatibility with the airport in question. Without knowing more about the development of boxes for our airport system, it is difficult to comment on the validity of the extent of noncompatible land use.

The Town of Goodyear recently updated its general plan, with a public vote scheduled for November 4. The new plan, if approved, should decrease the level of incompatible land use reflected in the report for the Goodyear Airport.

Environmental- Air Quality

The report does not reflect the impact of airports on the region's air quality. A general statement to this effect would help readers understand the relative impact of airports on the Valley's air quality.

In general, we struggled to follow the assumptions and conclusions of the air quality section. For example, emissions were depicted as higher under the low-growth scenario than under the high growth scenario. Further, the new airport alternative is shown to increase emissions, but seems more logical that emissions would decrease due to less delay and idle time.

Delays

With regard to the Tables included in the delay section, all contain a low-growth and a high growth estimate for Sky Harbor. The numbers noted in the table, however, do not make sense.

In addition, Sky Harbor's forecast operations have been updated as part of the EIS for the West Terminal Development. We request that the report be revised to reflect the new forecast of 670,000 operations in 2015.

While Sky Harbor does experience delays, the extent of the delays reflected in the report may be overstated. During most of the 24-hour day at Sky Harbor, the Airport has excess capacity with delays occurring only during several peak hours per day. As reflected in the report, new technology and additional airport development would decrease the potential for costly delays.

User Convenience and Airport Access

The report notes that the light rail project will provide additional access to Sky Harbor. We also have projects underway to improve the airport experience for our passengers once they arrive at Sky Harbor including a Rental Car Center and a People Mover. These two projects will reduce traffic congestion on our Airport roadways, improve air quality and increase efficiency in overall airport operations.

Airspace Compatibility

Decisions about airspace ultimately reside with the FAA who is charged with the safe and efficient use of airspace, and the responsibility of balancing all user-group needs - ie. air carrier, business aircraft, general aviation, and military.

The report recognizes the importance of both Luke and Sky Harbor to the region and the need to protect these two airports. Each of the alternatives is framed within this context.

The Improved Technology Alternative discusses the various new technologies on the horizon. These technologies will allow the FAA to more safely and efficiently control the Valley's airspace. However, the report frames these technologies in a negative light by stating that they could impact the routing of aircraft within Luke's airspace. We believe that the benefits of improved technology are tremendous, should not be so easily dismissed, and a more careful review of the impacts and benefits of the implementation of these technologies would be appropriate. For example, the Local Area Augmentation System (LAAS) currently slated for the Valley should provide more flexible curved approach paths into the Valley's airports rather than a 10 to 12-mile straight-in final approach. This system, used to its potential, could enhance the flow of traffic around Luke and Phoenix Sky Harbor airspace.

With regard to the Maximized Airport Development Alternative, the report includes the potential impacts of improvements that could be undertaken at MAG airports and how these improvements could impact the operations of Luke and Sky Harbor. Similar to the Technology Improvements Section, we are concerned about the inclusion of the potential impacts of airport improvements without a full assessment and substantiation of the validity of each concern, and whether the concern could be mitigated. For example, the report states that implementing precision approaches at Deer Valley, Goodyear, or Sky Harbor could ultimately have a severe impact to Luke's operations. Likewise, precision approaches at Chandler, Glendale, Mesa Falcon Field and Williams Gateway all were noted to have the potential to severely impact Sky Harbor's operations. However, we believe the extent of the impact to Luke and/or Sky Harbor would depend upon what technology was used and how it was implemented. DGPS technology, for example, would have much less of an impact than ILS technology, yet only ILS was assumed in this analysis. Again a more thorough and detailed analysis of the airspace implications of the various alternative scenarios is important, where there is a suggested or implied impact on Luke or Phoenix Sky Harbor.

Again, thank you for the opportunity to provide feedback. If you have any questions, please contact Debbie Klein at (602) 273-4013 or deborah.klein@phoenix.gov.

David Krietor
Aviation Director

Page	Item	Comment
5.2	Table 5.1	Include list (appendix) with the main airport projects for all airports under Status Quo.
5.2	Table 5.1	New Airport Development alternative does not include additional east west runway, as included under Maximized Airport Development alternative.
5.4	Table 5.2	Operation #s for 1986 and 1993 RASP noise contours for Estrella, Gila Bend, Pleasant Valley, Sky Ranch and Stellar seems to be inflated, check 1996 RASP Implementation Study.
5.5	Identification of future noise impact areas (boxes)	List the criteria used to determine the size of impact boxes or secondary impact areas. Relations to federal criteria for current 65 DNL noise exposure contours (primary impact areas) should be made clearer.
5.9	Impacts of Instrument Approaches	More nuances to the statement that ILS technology implementation will reduce noise impact are needed.
5.11	Table 5.3	Sky Harbor Part 150 Noise Contours = 773,000 operations.
5.13	New Airport Development - New Regional Airport (RAFA) Commercial	Use peak hour capacity and not ASV in the evaluation of adding supplemental peak hour capacity to Sky Harbor.
5.15	Noise impact - New Airport Development	The evaluation of future size of impacted areas does not include the option that new airport development will not result in a noticeable reduction in demand at existing airports, but serve as additions to curb expected growth in overall demand.
5.20	Air Quality	<ul style="list-style-type: none"> • The evaluation does not sufficiently make an account for the assumption that adding runways or making other improvements to existing airports in the most congested parts of the region will reduce/not add emissions beyond the Status Quo alternative. • Potential impacts on 8-hour non-attainment area concentrations, in particular contributions to annual CO concentrations. • PM10 not evaluated.
5.22	Costs/Economic Benefits - Table 5.8 and Appendix B	Does the costs for development of additional terminal development at Sky Harbor under the Maximized Airport Development exclude or include the costs for the West Terminal Complex (Status Quo)?
5.23	Economic Benefits	Introduce a measure to evaluate incurred costs under each alternative relative to expected benefits.
5.24	Delay	Delay should be a part of the evaluation of the cost/benefit analysis of the development alternatives.
5:34	User Convenience - Access Improvements	Sky Harbor is not included under the evaluation of roadway access for individual airports.
	Airspace Compatibility- Exhibit 5.10	"Traffic Pattern Airspace" does not include Luke AFB, and is difficult to interpret.
5.38	Impact on Luke AFB Airspace	Sky Harbor ILS impacts under Status Quo is missing.
5.44	Impact on Regional Airspace	<ul style="list-style-type: none"> • Cryptic Comment under evaluation of Sky Harbor, "Airport under discussion" needs to be changed/explained. • Impacts of 4th runway at Sky Harbor on GA access through Phoenix airspace should be addressed.
5.55	Title VI:	The evaluation does not account for severe impacts or impacts greater in magnitude that might affect larger portions of minority/low-income population groups within impacted areas

Page No.	Area	Comment
Environmental – Addresses Noise and Air Quality Issues		
5.5	3 rd paragraph, 2 nd sentence	Sentence is missing word or words
5.11	Noise	Under maximized airport development, an additional runway is not planned for Sky Harbor. If there is no current runway, how do you assume procedures for a new runway? Therefore, how do you evaluate noise impacts?
5.16	Table 5.4	The table is difficult to grasp its meaning. For Deer Valley, wouldn't the percent of non-compatible land use decrease below 30% if the number of acres impacted are reduced under the new airport development alternative? Likewise, for Sky Harbor, wouldn't the "new airport development" column be 10% rather than 20% since acreage impacted is the same as status quo and improved technology?
5.19-5.20	Air Quality	The GSE, Aircraft Refueling, and Aircraft Fuel Storage scenarios show more emissions under the low growth scenario than under the high growth scenario. Isn't that backwards?
5.20	Air Quality	Aircraft Fuel Storage - From reviewing basic assumptions of working paper, no matter WHAT alternative is chosen, demand for air service would be the same. Therefore the same amount of fuel would be used no matter where and should be a wash across the four alternatives. Also why are emissions higher under low growth than under high growth?
5.20	Air Quality	Aircraft- Emissions: It is unclear why a new airport would increase/decrease air emissions any more than other alternatives that improve capacity, like Maximizing Airport Development. Perhaps the delay time is even less than improved idle time on existing airports? However, why would some emissions like VOCs and CO, while NOx and SO2 increase? Finally, again the low growth emissions increase more than the high growth. How can that be, logically? So, the Status Quo should increase all pollutants, The Improved Tech and Maximized Airport Development should be a slightly lower increase from that, and the New Airport (less idle time) would be the lowest increase.
5.20	Air Quality	Total Emissions- How could the low growth emissions be more than the high growth (see NOx numbers)? Also this paragraph is too vague to allow comparison of alternatives.
5.20	Air Quality	Last paragraph - Why would a new airport increase emissions? Because it would increase capacity? That doesn't follow, as they are using the same growth scenarios over all four of the alternatives. Higher delay time without improvements would increase pollutants.
5.30	Table 5.15	Improved Technology should be a significant positive impact. Table doesn't differentiate positive impacts from negative impacts.
Cost/Economic Benefits		
5.24	Economic Impact	Impact should be stated in billions, not millions.
Delay		
5.26	Status Quo Delay Calculation	While delays do exist for Sky Harbor, the delays reflected in the report are overstated. Also, no mention is made of the excess capacity that exists during most of the 24-hour day at Sky Harbor. It at least should be mentioned and calculated in the Improved Technology alternative.
Airspace Compatibility		
5.38	Improved Technology	The study does a good job listing all of the possible improvements but does nothing to show how these improvements will facilitate more efficient use of airspace. Further, the inclusion of concerns that these improvements will affect the routings within Luke's airspace cannot be substantiated so should not be included without validation. Technology could and should help the management of this airspace.
5.39	Impact of new radar for Deer Valley & Scottsdale	Presentation of impact is not balanced. This radar will improve safety and efficiency for handling aircraft using DV and Scottsdale.
5.40	Airspace conflicts	The report notes that development of Sky Harbor will negatively impact Luke. However, more efficient means of managing airspace including the MOAs could mean better access for Luke rather than worse. Without a comprehensive study of the airspace these suppositions cannot be substantiated. If the study is trying to make an assumption that more demand within the terminal area will add more complexity, that would be valid. But with new technology to manage this complexity, it could be a moot factor. The statement made on 5.43 should be what is stressed - "increased airspace capacity may result at all instrument capable airports in the Region which would benefit the entire region." Table 5.20 should sum up all the rhetoric.
5.47	Table 5.21	The ratings in this table don't coincide with the information directly above. For example, New Airport Development above says "moderate" but 5.21 shows "significant." Likewise for Maximized Airport Development.

ATTACHMENT TWO

Meeting Notice

December 4, 2003 Public Meeting

MAG Regional Aviation System Plan Update

**Public Meeting on the
Maricopa Association of Governments
Regional Aviation System Plan Update**

Thursday December 4, 2003

**5:00 p.m. to 7:30 p.m.
Maricopa Association of Governments Office
302 North 1st Avenue, Suite 200, Saguaro Room
Phoenix Arizona 85003**

On Thursday, December 4, 2003 from 5:00 p.m. to 7:30 p.m. the Maricopa Association of Governments (MAG) will be hosting a meeting to offer the public an opportunity to provide input on MAG Regional Aviation System Plan Update. This Update is currently in progress, and we are examining four alternatives for meeting the demand for air transportation services in this region to 2025. These alternatives include such projects as: new runways at Phoenix Sky Harbor, Williams Gateway Airport and Phoenix-Goodyear Airport; runway extensions at Chandler, Buckeye, and Wickenburg; the restoration of Memorial Airfield; and sites for a new general aviation and a new commercial service airport in different parts of the region.

We are seeking public input on the evaluation of these alternatives. This public input together with a technical evaluation of the alternatives and input from the MAG RASP Policy Committee will be used to develop a draft set of plan recommendations. To view the consultant report which provides an evaluation of the alternatives, please go to the following website address: <http://www.mag.maricopa.gov/detail.cms?item=2822>. If you have any questions or need additional information, please contact Harry P. Wolfe at (602) 254-6300; or e-mail him at hwolfe@mag.maricopa.gov.

The Maricopa Association of Governments Office is located on the northwest corner of 1st Avenue and Van Buren in downtown Phoenix. Parking underneath the office building will be provided free of charge for public meeting participants.

BACKGROUND

The Maricopa Association of Governments is the regional planning agency for the Phoenix metropolitan area and represents 25 cities and towns, two Indian Communities and Maricopa County. Federal law and regulations give MAG certain responsibilities for transportation planning, and one of those responsibilities involves sponsoring a Regional Aviation System Plan.

The MAG Regional Aviation System Plan Update is a long-range strategic plan with the objective of meeting the air transportation needs of the public to 2025 in a safe and efficient manner. It is being undertaken by the consulting firm of Wilbur Smith & Associates, managed by MAG staff, and guided by an aviation policy committee made up of elected officials of our MAG member agencies.

The plan is examining potential development needs for 16 airports in the region along with the potential for the construction of some new airports. Figure 1 shows the airports that are subject to the study.

According to a comparison of the projected air traffic in the region with the existing capacities of the 16 airports, seven of our airports will exceed their capacity by 2025 potentially resulting in significant delay and inconvenience to the travelling public. In order to address these capacity shortages, the MAG RASP Update has identified four future alternatives which are generally described below. A more detailed list of the projects is attached.

1. Status Quo - only build those airport improvements which have already been scheduled for construction.
2. Improved Technology - in addition to the projects noted above improved technology in air traffic control would increase the capacity of the airport system.
3. Maximized Development - in addition to the projects in the first two alternatives, this alternative would also include expansion of existing airports to the maximum extent feasible.
4. New Airport Development - this includes examining the construction of a new general aviation airport and a new commercial service airport. Several search areas throughout the region have been identified for the placement of these new facilities.

A list of the projects is attached. Each of these alternatives have recently been evaluated in terms of criteria such as airspace, environmental compatibility, cost, and impact on delay. The results of the evaluation of the alternatives can be found at the following Web address:

<http://www.mag.maricopa.gov/detail.cms?item=2822>

As a part of the evaluation process we are requesting input from the public on the evaluation of the alternatives. This input together with the evaluation of the alternatives, will be used to develop a draft set of recommendations.

Table 5.1
Summary of Major Items for 4 Alternatives

Alternative	Major Items
Status Quo	<i>Currently programmed projects:</i> Runway extensions – Buckeye, Glendale, Wickenburg
Improved Technology	<i>Improved approaches to afford additional operating capacity:</i> Most expected improvement – Phoenix Sky Harbor, Williams Gateway, Scottsdale
Maximized Airport Development	<i>Expand airports with capacity constraints and upgrades:</i> Buckeye – longer runway, precision approach Chandler – longer runway, precision approach Glendale – longer runway, precision approach Memorial – restoration, new taxiway, nonprecision approach Mesa – precision approach Phoenix-Deer Valley – parallel runway, precision approach Phoenix-Goodyear – parallel runway, precision approach Phoenix-Sky Harbor – 4th runway, precision approach, addt'l terminal Pleasant Valley – pave runway & parallel taxiway, nonprecision approach Scottsdale – addt'l parallel taxiway, precision approach Wickenburg – longer runway, nonprecision approach Williams Gateway – new runway longer runway, precision approach, addt'l term space
New Airport Development	<i>GA:</i> Peoria/Pleasant Valley Wickenburg/Forepaugh New – south/southeast search area (south of Chandler) New – northeast search area (northeast of Scottsdale) <i>Commercial:</i> Expand Williams Gateway New – north search area (studied by City of Phoenix) New – south search area (studied by ADOT – RAFA)

Source: Wilbur Smith Associates

